

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE N/A	PAGE 1 OF 9 PAGES 1 9
2. AMENDMENT/MODIFICATION NO. 0004	3. EFFECTIVE DATE 30 JUN 03	4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable)
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE		
DEPARTMENT OF THE ARMY CORPS OF ENGINEERS SACRAMENTO 1325 J STREET SACRAMENTO, CALIFORNIA		SEE ITEM 7		

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(✓)	9A. AMENDMENT OF SOLICITATION NO. DACW07-03-B-0003
		(X)	9B. DATED (SEE ITEM 11) 6 JUN 2003
			10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A
			10B. DATED (SEE ITEM 13) N/A
CODE	FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(✓)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

**OAKLAND INNER AND OUTER HARBOR - 42 FOOT MAINTENANCE PROJECT
ALAMEDA & SAN FRANCISCO COUNTIES, CALIFORNIA**

1 ENCL

1) APPENDIX 10.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED

Dredge Monitoring System Operational Requirements-(DDLs)

Questions concerning Dredge Monitoring specifications shall be directed through the U.S. Army Corps of Engineers San Francisco District, Engineering and Technical Services Division, Construction Services Branch at (415) 331-0404.

Automated Dredge Positioning and Tide system

The Contractor shall electronically monitor dredge position on a 24-hour basis at 2-minute intervals using a Global Positioning System capable of positional accuracy of less than 6 ft. Tides shall be monitored at the same time interval with an accuracy of +/- 0.1 feet. Data shall be recorded to a logging system aboard the dredge and downloaded wirelessly at 4-hour intervals to a third-party server. The logging system shall have battery backup to compensate for power interruptions. Downloads shall be performed automatically and monitored by a USACOE approved third-party subcontractor for reliability. A system shall be in place that processes incoming data automatically as it is received. The data shall be posted for viewing on a password-protected web site when it is received. The web site shall provide the following features:

- 1) Dredge position plot over an electronic NOS chart
- 2) Display of the dredging template limits
- 3) Color-coding of each dredge position fix per categories listed below (eg. dredging, dredge transiting, maintenance, weather delay).
- 4) Display of monitoring data for a user-selectable time period (mm/dd/yy to mm/dd/yy).
- 5) Download of data via FTP in a USACOE-approved format compatible with USACOE analysis software. (Reference "Data Download Requirements" section)

The third-party subcontractor shall perform frequent Quality Assurance and Quality Control of the data. Equipment maintenance, troubleshooting and calibration shall be conducted by the same third-party subcontractor.

The Contractor may procure website, data transfer and monitoring services from SAIC or an equivalent service. Information can be found on SAIC's website www.adiss-afiss.com <<http://www.adiss-afiss.com>> .

Dredge Operators Log

Daily dredging "operator logs" shall be entered on a USACOE-approved web site. A 24-hour record of start and end times shall be recorded to the nearest minute for project time categories, and shall be entered to the web site for recording in an off-site database. At a minimum, time categories shall include the following:

- 1) Dredging
- 8) Standby for next shift

- | | |
|------------------------------------|-----------------------------------|
| 2) Moving Dredge | 9) Weather Delay |
| 3) Maintenance | 10) Vessel Traffic |
| 4) Crew Change | 11) Material Agitation (dragging) |
| 5) Repairs | 12) Shifting Scows |
| 6) Mobilize / Demobilize Equipment | 13) Standby for Scows |
| 7) Miscellaneous Non-Revenue | |

Operator Log data entry on the web site shall begin immediately following issuance of the contract Notice to Proceed and shall end upon completion of project demobilization. Data for the previous day shall be entered the following morning. A third-party subcontractor shall check data for Quality Assurance and Quality Control. The operator log data shall be made available for viewing in color-coded, graphical form on the web site.

The Contractor shall input final bathymetric QC and interim check survey volumes to the web site no later than 48 hours after completion of the survey. A third-party subcontractor shall check the data for Quality Assurance and Quality Control. The data shall be made available for viewing on the web site.

Prior to equipment mobilization, the Contractor shall submit for USACOE approval, a document from the third-party contractor describing the equipment, methods and past reliability statistics of the monitoring system proposed for use on the contract.

Dredge Plant Specific Monitoring Requirements

The type of dredge plant and method of material placement employed during the contract Operations shall dictate monitoring requirements beyond those listed in the "Dredge Monitoring Requirements" section. Types of dredging equipment are described in detail in Engineer Manual 1110-2-5025 "Dredging and Dredged Material Disposal." Dredging equipment not listed below shall require submittal of a suitable monitoring schedule to the USACOE for approval prior to equipment mobilization.

Trailing Suction Hopper Dredge (TSHD):

Aquatic Disposal

The Contractor shall provide a means to measure and record vessel heading, drafts, bin levels and slurry velocities in addition to the vessel position. Hull position and heading of the vessel shall be monitored on a 24-hour basis using a Global Positioning System capable of position accuracy less than 6 ft. Sensors located fore and aft along the vessel centerline shall monitor vessel draft to an accuracy of +/- 0.1ft. Acoustic sensors located fore and aft along the vessel centerline shall monitor bin level to an accuracy of +/- 0.1ft. Slurry velocity shall be recorded by a magnetic flow / Doppler metering device approved and

calibrated according to manufacturer's specifications. Slurry velocity shall be recorded on the discharge side of the dredge pump(s) in feet per second (accurate to 0.1 ft/s).

Position, heading, draft, bin and slurry velocity data shall be monitored at an interval of 10 seconds within 3,000 feet of the placement area and at 2 minute intervals at distances greater than 3,000 feet. Data will be displayed at the same intervals to a helmsman display within the TSHD wheelhouse. The display will include the dredging site, the appropriate placement site, marine sanctuary boundaries, as well as the correct NOS chart. The helmsman display will record electronic operator entries for the designated trip number, vessel identification, fore and aft vessel draft measurements (prior to departure from dredge site) and volume of material loaded. The system will log data internally and be equipped with a means to transfer the recorded data to a server computer for immediate processing and display. The web site shall be password-protected, and programmed with an automated alarm system to notify the Government should leakage or a misplacement of material occur during transit. The Project Manager shall report the incident to USACOE within 12 hours of occurrence.

Information displayed on the Internet will be similar to that displayed for the TSHD helmsman, and will be checked for accuracy and proper sensor operation by the approved third-party subcontractor. In the event the displacement and load capacity monitoring equipment malfunctions during the dredging operation, the Contractor shall immediately notify the Contracting Officer, and an alternative means of measurement shall be performed, as approved by the contracting officer. The use of an alternative measurement system shall not exceed a duration of seventy-two hours after equipment malfunction. If repairs are not accomplished within this period, the TSHD shall be removed from project use until repairs are completed and demonstrated to be fully operational. The Contractor shall be responsible for all costs associated with suspending the use of the TSHD due to monitoring equipment malfunction.

The TSHD operator shall monitor the helmsman display periodically and contact the Contractor Project Manager via phone in the event a loss of draft greater than 2 ft occurs during transit to the placement area.

A USACOE-approved third party subcontractor shall perform frequent Quality Assurance and Quality Control of the data. Equipment maintenance, troubleshooting and calibration shall be conducted by the same third-party subcontractor.

Upland placement

Monitoring shall occur as directed in the TSHD Seafloor Placement Section. Data recording intervals shall be maintained at a fixed 2-minute interval throughout the dredging cycle.

Clamshell or Excavator Dredge:

Aquatic Material Placement via Tug/Scow

The Contractor shall provide a means to measure and record position, drafts, and bin-levels of each scow loaded by the dredge. Monitoring shall be continuous from initial loading through discharge at the disposal site. Hull position and heading of the scow shall be monitored using an onboard Global Positioning System capable of position accuracy less than 6 ft. Sensors located fore and aft along the vessel centerline shall monitor vessel draft to an accuracy of +/- 0.1 ft. Acoustic sensors located fore and aft along the vessel centerline shall monitor bin level to an accuracy of +/- 0.1ft.

Position, draft and bin levels shall be monitored and recorded at 10-second intervals within 3,000 feet of the placement area and at 2-minute intervals at distances greater than 3,000 feet. Data shall be transmitted wirelessly in real-time at the same intervals to a helmsman display within the wheelhouse of the towing vessel. The display will include the dredging site, the appropriate placement site, marine sanctuary boundaries, as well as the correct NOS chart.

Data recorded on the scow system will be downloaded daily to the third party server through either the helmsman display system or the automated dredge position and tide system. Either system will also record the scow identification, towing vessel identification, fore and aft vessel draft measurements (prior to departure from dredge site) and volume of material loaded. Either system will log data internally and be equipped with a means to transfer the recorded data wirelessly to an off-site server computer.

Data from each previous trip shall be uploaded to a third-party server prior to the start of each new trip. An automated system shall be in place to process and display the data on a USACOE-approved web site. The web site shall be password-protected, and programmed with an automated alarm system to notify the Government and Contractor should leakage or a misplacement of material occur during transit. Determination of leakage and placement information shall be derived from draft sensor data and position information.

Information displayed on the Internet will be similar to that displayed for the helmsman, and will be checked for accuracy and proper sensor operation by the approved third-party subcontractor. In the event the displacement and load capacity monitoring equipment malfunctions during the dredging operation, the Contractor shall immediately notify the Contracting Officer, and an alternative means of measurement shall be performed, as approved by the Contracting Officer. The use of an alternative measurement system shall not exceed a duration of seventy-two hours after equipment malfunction. If repairs are not accomplished

within this period, the scow or tug shall be removed from project use until repairs are completed and demonstrated to be fully operational.

A USACOE-approved third party subcontractor shall perform frequent Quality Assurance and Quality Control of the data. Equipment maintenance, troubleshooting and calibration shall be conducted by the same third-party subcontractor.

Upland placement via Tug/Scow

Monitoring shall occur as directed in Section “Seafloor Material Placement via Tug/Scow”. Data recording intervals shall be maintained at 2 minutes throughout the dredging, transit and discharge cycles.

Hydraulic Cutter-head Dredge:

Dredge monitoring and reporting requirements shall be carried out according to Section “Dredge Monitoring Requirements”. Two GPS units shall be incorporated. One GPS antenna shall be located near the pivot point of the suction ladder. The second GPS antenna shall be located at the stern of the dredge. Dimensions of the dredge and GPS antenna locations measured to the nearest 0.5 feet shall be provided to the USACOE.

Slurry velocity shall be recorded by magnetic flow / Doppler metering device approved for use by the USACOE and calibrated according to manufacturer's specifications prior to commencement of work. Slurry velocity shall be recorded on the discharge side of the dredge pump(s) in feet per second (accurate to 0.1 ft/s).

A USACOE-approved third party subcontractor shall perform frequent Quality Assurance and Quality Control of the data. Equipment maintenance, troubleshooting and calibration shall be conducted by the same third-party subcontractor.

Data Download Requirements:

Data File Naming Convention

Data for daily operations beginning at 0000 hours and concluding at 2400 hours shall be encompassed in files formatted with the following naming convention: DjjjYnn.bbb. “jjj” represents the Julian day, “nn” represents the abbreviated year, and “bbb” represents the vessel name by a unique 3-character abbreviation. Processed and QA/QC’ed data files shall be made available for download within 8 hours of collection. Data shall be made available for download in batches via a user-selection of a) starting and ending dates and b) vessel name.

Data Field Descriptions

1) Local time shall be output to the nearest second in military-style 24-hour format. The time data field will occupy 11 characters in an hour-minute-second form so that a typical time entry representing 1 minute and 30 seconds past 4 o'clock PM would appear as:

Time (local hour-minute-second)

16.	01.	30.
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2) Horizontal dredging equipment positioning shall be provided in feet in California State Plane (Lambert coordinate) based on North American Datum 1983.

Northing and Easting Format

540000.	1400100.
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3) Headings shall be recorded for position in positive degrees only from 0 to 360 degrees and to the nearest whole degree. 0 degrees shall equal true north and with a sign convention so that positive degrees are in a clockwise direction. Headings shall occupy a data field 4 characters long so that a typical entry of 90 degrees due east would be:

Heading (degrees)

0	9	0	.
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4) The Government-furnished datum shall be used for all DDLS tide datum. Above datum (positive) tide values shall be entered into the DDLS data file with a positive sign (+) as the first tide data field character, and below datum tide values shall be entered into the DDLS data file with a negative sign (-) as the first tide data field character. DDLS tide data shall occupy a data field 4 characters in length with a typical below datum entry appearing as:

Tide (feet)

-	1	.	0
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5) Draft data will occupy two data fields with 4 characters each so that the DDLs entry would appear as:

Draft (fore and aft, respectively, in feet)

4.7	4.5
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6) Hopper and barge bin levels are to be recorded upward positive values from the bottom of the hopper or barge bin. Hopper and barge material levels will occupy 2 data fields that are 4 characters long each. A typical barge or hopper level input would appear as:

Barge or Hopper Level (fore and aft, respectively, in feet)

3.8	3.9
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7) Slurry velocity shall be recorded in feet per second in 3 significant digits. A typical velocity value in the output string would occupy a 4 character field and appear as:

Slurry Velocity (feet per second)

<u>1</u>	<u>0</u>	.	<u>0</u>
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Output Format Example

A typical data file download from the web site would have the following properties:

File name:

“D214Y05.PS1” (The file would contain a 24-hour record of the 214th day of the year 2005 for the dredge plant with identified by the name “PS1”)

Data Contained in the File:

“00. 02. 00. 530100. 1400100. 090. 15.0 1.15 -42.0 16.4 1.19 -41.1 15.5 14.9 12.4 12.9 +2.5”

“00. 04. 00. 530103. 1400104. 090. 15.0 1.14 -42.0 16.3 1.19 -41.1 15.5 14.8 12.3 12.9 +2.5”

Sensor Calibration Procedures and Document Submittals

The third-party monitoring subcontractor shall provide dimensioned drawings of each dredge plant. Dimensions shall include vessel and bin lengths, depths, and widths. GPS, draft and bin sensor locations shall also be included in the drawings.

Barge and hopper ullage tables listing bin volume as a function of material level shall be submitted to the USACE. Barge and TSHD draft displacement tables indicating vessel displacement tonnage as a function of draft shall also be submitted. The ullage and displacement tables shall be certified by a licensed marine surveyor or architect. Ullage and draft information shall include a polynomial equation describing the volume versus tonnage.

A third-party monitoring contractor shall conduct calibrations of draft and bin sensors prior to the project start. Physical tape-measurements of draft and fluid level shall be conducted during the calibration of the electronic system. Sensors shall be calibrated such that electronic sensor measurements match physical measurements during a fill cycle of an empty scow or hopper with water. The test fill cycle shall be repeated until sensor data and physical measurements match to within 0.2 ft. The final calibration cycle shall be recorded electronically, plotted and submitted to the USACE for approval.